

## ANALYSIS OF EFFECT OF THE PRESENCE OF SOEKARNO-HATTA AIRPORT PROVINCE OF ENVIRONMENTAL AND ECONOMIC BANTEN

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### ABSTRACT

This research is causality which has the objective to analyze the presence or absence of mutual influence of existence of the relationship between variables Soekarno-Hatta International Airport, Manufacturing, Transportation, Services, wholesale and retail trade, Hotels, Restaurants and Economic Growth of Banten. The development of Soekarno Hatta airport positively gives the economic growth effect in the province Banten through economic sectors (Industry, Transport, Real Estate services, wholesale and retail trade, hotels and restaurants. Analysis result is development of Soekarno Hatta Airport (PBSH) directly affects the economic sectors (Manufacturing Industry (IP), Transport (ANG), the Government and Private Services (JS), Wholesale and Retail (DBE), Hotel (HTL), Restaurants (RST). Sector Economic Sector (IP, ANG, JS, DBE, HTL, RST) directly influence the Banten Economic Growth and The Airport Soekarno-Hatta International Environment device that is in the form of waste water treatment, waste incineration aviation industry, protective tree planting around the airport has done well, but the basic concept based on field studies for Environmental setting has not been done.

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## INTRODUCTION

### 1.1 Background

Soekarno-Hatta International Airport is the “Enclave Area” is an exclusive area that is not influenced by the local environment, so that the output has not been able to increase

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the growth of the surrounding territory, in conditions such as output and input are likely to be enjoyed by the region that have better infrastructure.

Banten province as the owners are faced with a substantial problem because of the history of the Soekarno-Hatta international airport development carried out by the government when it is not intended to Banten Province, but as the International airport to the national needs, so that in its development where Soekarno-Hatta International Airport contributes less economic development for the Province of Banten.

Starting from the above conditions, much like the executive, legislative and experts consider that the presence of Soekarno-Hatta International Airport should have an enormous influence on economic issues, namely an increase in income per capita and the community as well as environmental issues (environment) that can affect human life, agriculture and animals and it takes the economy to include:

- 1) Build roads infrastructure (accessibility) to and from the international airport to Jakarta and Banten and better meet the demands of road users.
- 2) Build the facilities needs of its passengers, among others, Hotel, Restaurant, Transportation more adequate.
- 3) Attention to the environmental impacts of aviation industry presence (pollution, noise, waste airport)

## **1.2 Problem Identification**

Departing from the background and the problems that exist in this study identified as follows:

- 1) The existence of the airport has not been able to increase economic growth in Banten province economic and through non-economic sectors.
- 2) The existence of the airport has not been able to cope with environmental problems such as pollution, noise and the impact of waste generated by the aviation industry
- 3) The existence of the airport has not been able to encourage the spread and degree of economic growth in Banten province.
- 4) On the basis of the ten indicators of economic sectors have a strong influence on economic growth in Banten province. But has not shown an increase in income per capita real people.

## **1.3 Problem Limitation**

Output Soekarno-Hatta International airport consists of the number of flights (aircraft movement), passengers (passenger), goods and cargo and postal (mail) in terms of airport flight then the output is divided into 2 (two) types, (a) flight service (Aeronautical) and, (b) passengers /cargo, and postal services are classified as (non-aeronautical.)

In the study the authors restricted the activities (Limitation of Scope) is directly related to the development of linkages Soekarno-Hatta International Airport from 2007 to 2011 which includes among others: (a) Number of Flights, (b) Manifest, and (c) The amount of goods and cargo to the growth of Banten province through the economic sectors were: 33 activities of economic sectors (BPS 2002), but in this study the economic sectors directly related to economic growth in Banten province are: (a) Processing industry, (b) Transport, (c) Government & private, (d) Wholesale & retail trade, (e) Hospitality, and (f) Restaurant.

#### **1.4 The Formulating Problem**

- 1) The extent of the influence of the Soekarno Hatta International airport to the Banten provincial economic growth.
- 2) The extent of the influence of the Soekarno-Hatta International airport to the economic sectors (Manufacturing, Transportation, other services, wholesale and retail trade, hotels and restaurants) in Banten province
- 3) The extent of the influence of the sector - the economic sector (Industry, Transport, Services other services, Wholesale and Retail, Hotel and Restaurant) on the economic development of Banten province.
- 4) The extent of the influence of backward linkages (backward linkages). forward linkages (forward linkages) as well as the spread of economic development of the province of Banten.
- 5) The extent of the influence of the presence of international airport Soekarno-Hatta on the surrounding environment (pollution, noise, waste airport)

### **REVIEW OF THE LITERATURE**

#### **2.1 Theoretical Study**

##### **2.1.1 Understanding Airport**

According to Robert Haronjeeff, Francis X. Mc Kelsey (1988, p.149) that the airport master plan should consider the following matters:

- a) Development of airport facilities.
- b) Development of airport land.
- c) Establish the effect of airport construction and airport operations on the environment.,
- d) Establish the needs of the road,
- e) Determination of economic feasibility,
- f) Determination of development priorities schedule.

As for the Research and Development Agency Department of Transportation (2001), that the definition of "Airport in addition to technical issues also include the activities of economic growth and the surrounding communities. Thus it is suggested that understanding the airport is seen as an integral part of economic activity within a specific area of the airport".

Rigas Dog anis (2002, p.7), gives the definition of the Airport are complex industrial enterprises. They act as a forum in the which disparate elements and activities are Brought together to facilitate, for both passengers and freight, they interchange Between water and surface transport.

Anne Graham (2001: p.1) said, "Airport are an essential part of the water transport system. They Provide all the infrastructure needed to enable passenger and freight to transfer from surface to air modes of transport and to allow airlines to take off and land. The infrastructure consists of basic airport runway, taxiways, apron space, gates, passenger, freight terminals and transport interchanges ground"

"Greater Airport can bring wealth, employment opportunities and substantial Provide Encourage economic development".

Rex W. Faulks (1992 p.7) says that the function of transport is to move passenger or goods from where They are to where They would to be and the importance of an adequate transport system to economic development, the life of the community.

Likewise, M.J. Bruton (1974 p.8), that the transport planning is aligned with the growth of the region so the impact on economic growth. With other languages G.Myrdal (1988) in his study concluded that the distribution of development into one of the alternative policy of economic development planning,

According to Rosenstein – Rodan in his book *Economic Development* by Lincoln Arsyad (1999, p.90) on a large scale industrial development will create three kinds of economic externalities, namely:

- 1) Caused by the expansion of the market.
- 2) Because the same industry located close
- 3) Because of the other industries in the economy.

Theories raised by Rosenstein and Rodan is in line with the presence of Soekarno Hatta airport as the airline industry if studied in depth to create economic externalities such as:

- 1) Creating employment and both formal and non-formal.;
- 2) Encourage industrialization associated with the airport supporting industries,
- 3) Increase the income of the population,
- 4) Changing agricultural-based region-based regions industry. the environment.

Some things to consider in building a clean environment should be considered include:

- a) Atmosphere, minimize impact on water quality by reducing the volume of water pollutants generated or discharged from airport operations.
- b) Energy, reduce energy consumption from airport operations and thus Spike help to cut global warning gas (CO<sub>2</sub>) emissions.
- c) Noise and Vibration, minimize impact on the airport and its environs by reducing the level of noise and vibration generated or discharged from airport operations.
- d) Water, prevent pollution and Contamination of waterways and groundwater from drainage water generated during airport operation, Also, seek to Reduced water consumption as well as reuse and preserve water resources at the airport.
- e) Soil, ground Prevent pollution from oil, chemicals and agents and other materials used in airport operations.
- f) Waste, Encourage Greater reuse of waste products generated at the airport as resources, reduce the volume of waste generated and promotes recycling.
- g) Natural Environment, conserve and create ecosystem within the airport to integrate the airport into its surrounding and to maintain a healthy natural environment.

There are four methods to identify key sectors in the economy of a country or region, among others:

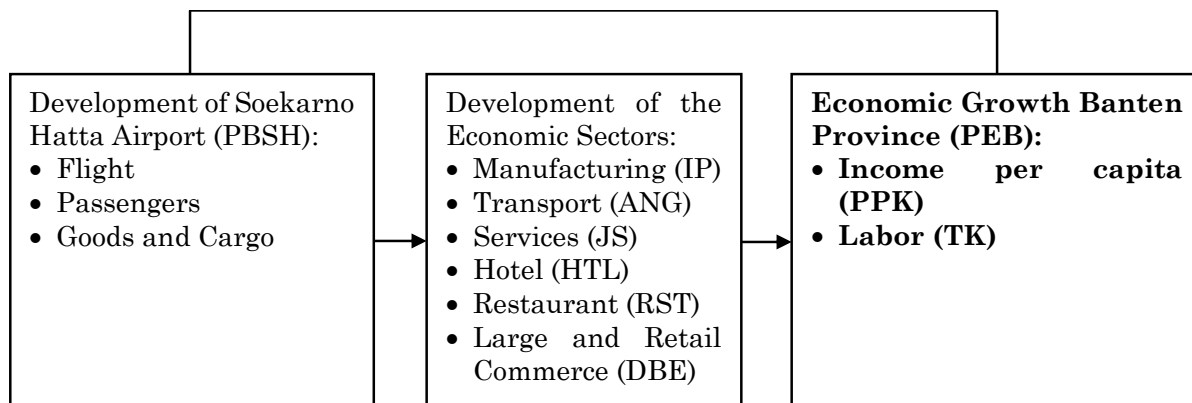
- 1) A sector is considered as a key sector is concerned if backward (backward linkages) and the forward link (forward linkages) are relatively high.
- 2) A sector is considered a key sector where high gross output.
- 3) A sector seen as key sectors where foreign exchange is able to produce a net revenue is relatively high.

4) Considered a key sector if it can create jobs.

For more details, here is presented a table - Input Output table analysis backward linkages (backward linkages) and forward linkages (forward linkages) as well as the spread of economic sectors to the economic development of the province of Banten.

According to the Airport Planning & Development Handbook (Paul Stephen Demsey pp. 433 – 434) that Professors Kevin O, Connor and Ann Scott states that “An Airport is Perhaps the most Important single piece of infrastructure in the Battle Between cities and nations for economic growth, cities and regions invest in transportation infrastructure in order to put a larger cup in the stream and Realize Greater economic growth”.

**Figure – 1: Thinking Framework**



## 2.2 Research Hypothesis

- 1) There is a growing influence Soekarno-Hatta International airport to the economic growth of Banten Province.
- 2) There is a growing influence Soekarno-Hatta International airport of sectors - sectors of the economy in the province of Banten.
- 3) There is a growing influence of economic sectors (Manufacturing, Transportation, Services other services, Wholesale and Retail, Hotel and Restaurant) on the growth of the economy Banten Province.
- 4) There is the influence of backward linkages (backward linkages) and forward linkages (forward linkages) as well as scattered power (power of dispersion) of each sector of the economy of the Banten provincial economic growth
- 5) There is a growing influence airport Soekarno-Hatta International improving the environmental impact by developing a community around the CSR to build Water Treatment aviation industry for the production of waste does not pollute the environment, planting trees around the airport as a step towards Eco Airport, building a sanitary facility for the surrounding community.

## METHODOLOGI RESEARCH

### 3.1 Research Sites

Location of research conducted Soekarno Hatta International Airport and includes Tangerang Banten province and surrounding areas.

### 3.2 Population, Sample and Sampling

The research was conducted by collecting secondary data, namely data Banten provincial GDP coherent time (time series) from 2007 to 2011, and statistics airlines, passengers and cargo between 2007 and 2011 as well as Input Output Study Banten Province in 2000, the journal in and overseas, especially on “The Influence of Impact to the Airport Economic Growth.”

Time sequential data (time series) between 2007 and 2011 treated with test assumptions Structural Equation Modeling (SEM) of them with multicollinearity and Singularity, so that the testing is not necessary to “test otokolinearity”

### 3.3 Research Design

This study was designed to address issues that have been formulated, the research objectives to be achieved and simultaneously test the hypotheses. This research is causality which has the objective to analyze the presence or absence of mutual influence of existence of the relationship between variables Soekarno Hatta Airport, Manufacturing, Transportation, Services, wholesale and retail trade, Hotels, Restaurants and of Economic Growth and Banten. The type of data used are secondary data.

#### 3.3.1 Variable and Operational Definitions

This study used several variables as follows:

- 1) **Independent Variables (Independent), Namely:** Development of Soekarno-Hatta Airport (PBSH)
- 2) **Among the Variables, Namely:**
  - (a) Industrial Processing (IP), this variable was measured through the development of the revenue from 2007 to 2011.
  - (b) Transportation (Ang), these variables are measured by. Development of the revenue from 2007 to 2011.
  - (c) Services service, this variable is measured from the sum of public and private sectors through the revenue from 2007 to 2011.
  - (d) Wholesale and Retail (DBE), this variable is measured by the value of income from 2007 to 2011.
  - (e) Hotel and Restaurant, this variable was measured through the development of hotel and restaurant revenue from 2007 to 2011.
- 3) **Dependent Variable (the Dependent), Namely:** economic growth Banten (PEB), which is measured by using a 2 (two) indicators, namely per capita income (PPK) and the number of resident population aged 15 years or older who work under employment (TK) is at: Processing industry , Transportation, Services, Large and Retail Trade, Hotel and Restaurant from 2007 to 2011.

### 3.4 Statistical Analysis Techniques

In this study the analytical techniques used there are 2 (two): (1) Analysis Technique Input – Output (W. Leontief) to determine the extent of backward linkages (backward linkages) and backward linkages (backward linkages) the development of Soekarno Hatta International airport to the economic growth of Banten province, while (2) Analysis of



structural equation modeling techniques are used to test a new theory developed both the theory and the theory has been developed.

## RESULTS AND DISCUSSION

### 4.1 Description of Research

#### (1) Testing the First Hypothesis

There is the influence of presence of Soekarno-Hatta International Airport to the economic growth of Banten Province.

#### (a) The Existence Analysis International Airport Soekarno-Hatta

The existence of the International Airport Soekarno-Hatta had positive and negative developments in line with global and national economic conditions., Between 2007 to 2008 the number of flights that visited Soekarno Hatta airport in 2007 as many as 248.482 aircraft, the aircraft 250. 173 in 2008 rose by 0,68 percent, and gradually fade experienced positive growth between 2010 and 2011 was 13,08 percent. The condition of passenger growth between 2007 and 2011 positive growth in the amount of 6,13 percent in 2007 and 0,67 percent in 2008, passenger growth experienced positive until 2011., as well as goods and cargo positive average growth between 2007 to 2011, 9,83 percent Effects of the International Airport Soekarno Hatta can be seen in the table. 1 below: Bottom of Form

**Table – 1:** *The Statistics Growth of Soekarno Hatta International Airport Since 2007 -2011*

Years	Aircraft Movement (PNB %)	Passenger (PNP %)	Cargo (BRK %)
2007	0,55	6,13	25,07
2008	0,68	0,67	1,73
2009	9,08	15,21	( 8,30)
2010	11,97	19,42	17,84
2011	13,08	15,38	12,18
Average	6,26	10,82	9,83

**Source:** *Statistic Angkasa Pura 2, 2011*

#### (b) Analysis of Economic Growth in Banten Province

Jakarta is a city of industry, commerce and tourism, the provincial capital has a dock that connects the sea and the island of Sumatra Airport (airport) Soekarno-Hatta International which has strong economic potential for economic growth in Banten province.

Airport is one of the gate to international and national economic activities that can drive economic growth in Banten Province, untapped maximum because of the absence of support accessibilities adequate facilities and infrastructure, resulting in high economic leakage that flows into the province of Jakarta.

Levels of economic leakage occurs due to the visitors / foreigners who come through the Soekarno Hatta International Airport is large enough according to statistics released by the Statistics Department of PAP II (2011), whereas the type of expenditure of foreign tourists according to the survey Passenger Exit Survey by BPSDT (2003-2012) are included among others:

- a) Accommodation (Accommodation),
- b) Food and Drink (Food and Beverage),
- c) Crafts and Shopping (Souvenir and Shopping),
- d) Local Transport (Local transport),
- e) Cruise (Sightseeing)
- f) Entertainment (Entertainment) and when calculated on the average level of spending foreign tourists who visit through Soekarno-Hatta is quite significant in number, namely: (a) The year 2006 average of U.S. \$ .913,09 years, (b) The year 2007 amounted to U.S. \$.970,98 year, (c) in 2008 amounted to U.S. \$ 1.178,54 year, (d) in 2009 amounted to U.S. \$ 995,93/ year, (e) in 2010 amounted to U.S. \$ 1.085,75 / year, (f) year 2011 amounted to U.S. \$. 1.118,26 / year.

Besides the level of leakage at the sector level of expenditure of the foreign tourists, there are still quite a lot of other economic sectors that need to be extracted from the activity at the airport as well as taxes food sales tax, billboards, vehicle parking, and taxes on companies that operate at the airport. The group allegedly had above a high level of leakage, because the revenues do not flow into the province of Banten.

Based on Central Bureau of Statistics based on constant price sources Banten Province (2004 – 2012), the Gross Regional Domestic Product Banten province after province of Banten in 2000 was as follows: the year 2006 amounting to Rp. 61.342. billion, in 2007 amounting to Rp. 75.350 billion in 2008 amounting to Rp. 79.701. billion/ year, year 2009, 83.454 billion/year, 2010, 88.552, billion / year, 2011, 94.207 billion/year, year 2012, 100.00 billion (Preliminary figures)

Banten provincial economic conditions described in the GDP is the largest contribution to economic growth include: the secondary sector (Manufacturing) average - average 3,8 percent per year, the primary sector (Tananam foodstuffs) by an average of 4 percent per years, the tertiary sector (transport and communication) average of 9,44 percent (Sources Central Bureau of Statistics of Banten Province years 2000)

### **(c) Analysis of Soekarno-Hatta International Airport Development to Economic Growth in Banten Province**

The test results through structural equation modeling analysis test showed that the development of Soekarno-Hatta airport is not directly influence the growth of the economy but the growth of the province of Banten province's economy grow through the economic sectors as shown by the path coefficient of -10.514 with a probability value of 0.000 (Table 2) means that any development of the Soekarno-Hatta airport because of the growth sectors of the economy affects the economic growth of 9.56 Banten province (Table 4)

From these results mean missed the first hypothesis, and it can be concluded that the first hypothesis is supported by the facts or accepted. This has implications, that the development of Soekarno Hatta airport to positively affect economic growth in the province Banten through economic sectors (Industry, Transport, Real Estate services, wholesale and retail trade, hotels and restaurants), as proposed in the Journal Cincinnati Airport / Northern Kentucky International Airport (1977), namely: "The influence of international airport on regional economic growth".

From the explanation suggested by these experts can be concluded, that the airport is an area consisting of air traffic activity (aircraft movement), passengers (passenger) as



well as goods and cargo that can boost the economy either directly or indirectly to the economy of the province Banten.

**Table – 2:** *Path Coefficients (Standardized Regression) Relationships between Variables*

Path	Path Coeffisiens	T. Calculated	Probability	Remark
LNDBE_1 <- LNPbsh_1	0,819			Significant
LNHote_1 <- LNPbsh_1	0,496	7,304	0	Significant
LNRest_1 <- LNPbsh_1	0,731			Significant
LNIP_1 <- LNPbsh_1	0,267			Significant
Jasa_1a <- LNPbsh_1	0,903	19,605	0	Significant
LNang_1 <- LNPbsh_1	0,716	11,869	0	Significant
LNPEB_1 <- LNHote_1	3,251			Significant
LNPEB_1 <- LNDBE_1	2,571			Significant
LNPEB_1 <- LNIP_1	0,719	6,882	0	Significant
LNPEB_1 <- Jasa_1a	2,524			Significant
LNPEB_1 <- LNRest_1	2,88			Significant
LNPEB_1 <- LNPbsh_1	-10,514	-22,8	0	Significant
LNPEB_1 <- LNang_1	1,769	6,796	0	Significant
LNSWT_1 <- Jasa_1a	0,989			Significant
LNPMR_1 <- Jasa_1a	0,777	13,912	0	Significant
LNtk_1 <- LNPEB_1	0,036	1,02	0,308	Non-Significant
LNPNP_1 <- LNPbsh_1	3,148			Significant
LN BRK_1 < LN Pbsh_1	0,081	1,192	0,233	Non-Significant
LN PPK_1 < LN PEB_1	0,478			Significant

Numerical values do not appear in T. Calculate (Critical Value) and the probability indicate a problem identification (identification problem) By using the AMOS 4.0 computer model of causality estimation can be done, and one of the problems encountered and the onset of symptoms – symptoms as follows: (a) Standard error for one or several coefficients are very large, (b) Appears an odd number as the number of negative error, and (c) The emergence of a very high correlation coefficient between the estimates obtained for example more than 0.9 (Augusty Ferdinand 2000 p.46-47).

Solutions to overcome this identification problem by providing a constraint on the model analyzed. Consequence of this provision will eliminate the estimated coefficients, which means the value of T. Calculate (Critical Ratio) and probability do not arise.

On testing the hypothesis (alternative) is done by observing the 0.05. probability (p) is said to significantly when the value of p with Labor (TK) and these criteria shows that economic growth Banten (PEB) Goods and Cargo the development of Soekarno-Hatta International Airport (PBSH) (BRK) since probability values greater than 0.05 is not significant.

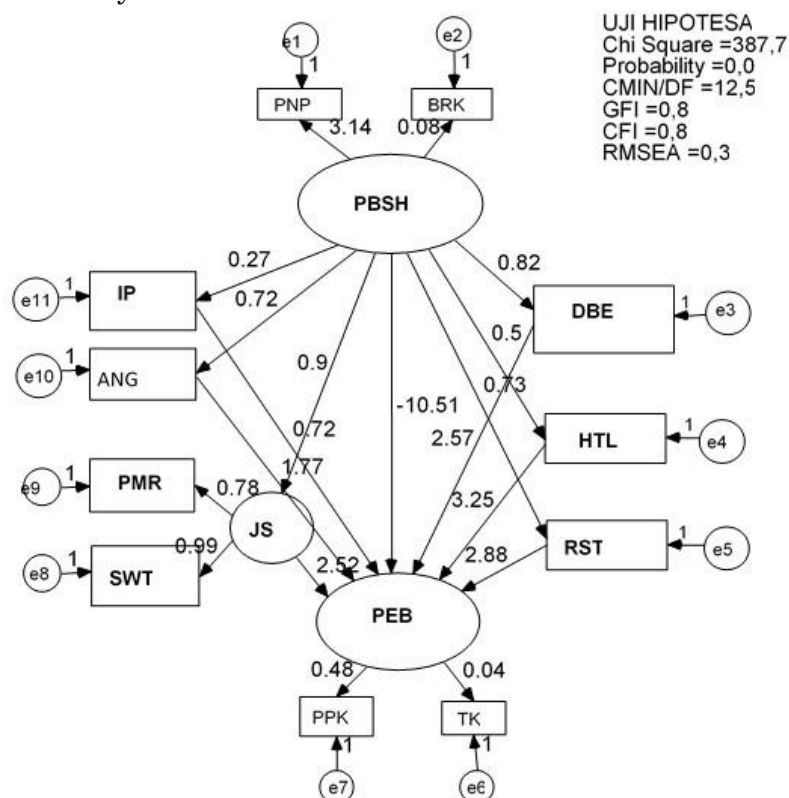
Development of Soekarno-Hatta International Airport (PBSH) directly affects the economic sectors (Manufacturing Industry (IP), Transport (ANG), the Government and Private Services (JS), Wholesale and Retail (DBE), Hotel (HTL), Restaurants (RST) Sector Economic Sector (IP, ANG, JS, DBE, HTL, RST) directly influence the Banten Economic Growth.

Soekarno-Hatta international airport developments (PBSH) does not directly influence economic growth Banten (PEB), but through economic sectors.

## (2) The Second Hypothesis Testing

There is the influence of the presence of Soekarno-Hatta International Airport to the economic sectors in the province of Banten. To test the hypothesis of a causal relationship in both used models of "Structural equation modeling" (SEM). To avoid the high data variation is performed A logit (LN). The results of testing with structural equation model with AMOS 4 program shown in Figure 2

Causal relationships between PBSH, IP, ANG, JS, DBE, HTL, RST and PEB with Confirmatory Factor Analysis



**Table – 3:** Criteria Evaluation Goodness of Fit Indices

Criteria	Result	Critical Value *)	Evaluation Model
Chi-Square	387.7	Relatively small	Good
Probability	0.00	$\geq 0,05$	Not good
RMSEA	0.3	$\leq 0,08$	Not good
GFI	0,8	$\geq 0,95$	Not good
CFI	0,8	$\geq 0,95$	Not good

**Source:** \* Hair (1992), Arbuckle (1997), Muller (1996)

From the above table it can be argued that 3.di models tend to be relatively acceptable or in accordance with the data. This indicates that the probability value, and the RMSEA is less good but Chi-Square is quite good and the GFI and CFI marginal. To test the hypothesis Causal Relationship Between PBSH, IP, ANG, JS, DBE, HTL, RST and Confirmatory Factor Analysis PEB with presented coefficient following lines indicating a causal relationship between these variables. The relationship is shown in Figure 2.

**Table – 4:** *Recapitulation Direct Effects, Indirect Effects, and Total Effects among Variables*

Ket.	PBSH			Angkutan			Restoran			IP			DBE			Hotel			Jasa			PEB		
	EL	ETL	ET	EL	ETL	ET	EL	ETL	ET	EL	ETL	ET	EL	ETL	ET	EL	ETL	ET	EL	ETL	ET	EL	ETL	ET
Angkutan	0.72	0.00	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Restoran	0.73	0.00	0.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IP	0.27	0.00	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DBE	0.82	0.00	0.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hotel	0.50	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jasa	0.90	0.00	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PEB	-10.51	9.56	-0.95	1.77	0.00	1.77	2.88	0.00	2.88	0.72	0.00	0.72	2.57	0.00	2.57	3.25	0.00	3.25	2.52	0.00	2.52	0.00	0.00	0.00

**Description:** EL = Direct Effect, ETL = Indirect Effect, ET = Effect of Total

PBSH direct effect of the PEB for -10.51, these figures are Standardized Regression Weights

Indirect effects of PEB PBSH of 9.56, meaning that growth in PEB by economic sectors (IP, ANG, JS, DBE, HTL and RST)

The total effect of the PEB is PBSH - 0.95 means that the total development of the airport has not contributed as expected, but indirect effects can encourage economic sectors in the province of Banten. The test results through Structural Equation Modelling (SEM) which can be seen from Figure 2 and Table 4 can be explained that the causal relationship as well as direct effects (EL) The development of Soekarno Hatta Airport (PBSH) to the sector – Manufacturing sector of the economy (IP), Transport (ANG), Service-Service (JS), wholesale and retail trade (DBE), Hotel (HTL), Restaurant (RST), respectively at 0.72: 0.73: 0.27: 0.82, 0.50; 0 , 90 and the Development of Direct Effect Soekarno-Hatta International Airport to the economy, Banten Province (PEB) of -10.51. Transport direct effect on economic growth, Banten Province (PEB) of 1.77, Restaurant on Economic Growth Banten Province (PEB) of 2.88; Manufacturing Industry (IP) for Economic Growth Banten (PEB) of 0.72; of Commerce and retail (DBE) on Economic Growth Banten (PEB) of 2.57; Hotel on Economic Growth Banten (PEB) of 3.25; Services for Economic Growth Banten (PEB) of 2.52. While the indirect effects Soekarn-Hatta International Airport Development (PBSH) on Economic Growth Banten (PEB) through Transport, Restaurants, Manufacturing, wholesale and retail trade, hotels and services at 9.56.

From the analysis conducted, that the second hypothesis was the first to support the hypothesis that there is no reason to reject the first hypothesis because it is based on the results - the results of the analysis was correct that positively influence the development of the airport sector in the provincial economy Banten through economic sectors.

Thus the results of this study complement the theory put forward by Anne Graham (2001) that “Greater Airport can bring wealth, employment opportunities and substantial Provide economic development”, the statement pointed out that Graham was also at a

regional airport activity is influenced by several factors, among others: Direct, Indirect, Induced Impact.

### (3) The Third Hypothesis Testing

There is a growing influence on the growth sectors of the economy sector of the economy Banten Province. Structural equation modeling test results, showing that the causal relationship between economic sectors to economic growth Banten respectively as follows: the influence of Manufacturing for Economic Growth in Banten province reached 0.72, the influence of transport on economic growth of 1.77 Banten, the effect of services on Services Economic growth of 2.52, wholesale and retail trade influences economic growth by 2.57 Banten, the effect of Hotel on economic growth Banten of 3.25, the effect on economic growth Banten Restaurant (PEB) of 2.88 (Figure 2). From the results of these analyzes indicate that the third hypothesis supports this second hypothesis means that the third hypothesis is missed, and it can be concluded that the third hypothesis is supported by facts or acceptable. This has the implication that the growth sectors of the economy affect the economic development of Banten province.

### (4) The Fourth Hypothesis Testing

Backward linkages (backward linkages) and future (forward Linkages) and Coverage (power of dispersion) of each sector of the economy on the growth of Ban ten province's economy.

Analysis used to test it is with Input Output Analysis introduced by W. Leontief (1976), this model is able to describe the association sector – a sector that is backward linkages (backward linkages) to determine the scatter and forward linkages (forward linkages) to determine the degree of sensitivity of economic sectors in the province of Banten. The fourth hypothesis is to determine the impact of the spread of the model formulated in the following equation:

$$\alpha_j = \frac{\frac{1}{n} \sum_i b_{ij}}{\frac{1}{n^2} \sum_i \sum_j b_{ij}} \dots\dots\dots (1)$$

Where  $\alpha_j$  is the index  $j$  and the spread of the sector, better known as the spread of sector  $j$

$\alpha_j$  scale can have a value equal to 1, a larger or smaller one.

If  $\alpha_j = 1$ , it means that the spread of sector  $j$  equal to the average spread of all economic sectors.

$\alpha_j$  values  $> 1$  indicate that the spread of sector  $j$  is above the average power sector spread throughout the economy, and vice versa if  $\alpha_j < 1$  demonstrates the lower deployment of sector  $j$ . In many tables I-O analysis,  $\alpha_j$  is also known as the impact of backward linkages (backward linkages)

While in the fourth hypothesis is formulated to determine the degree of sensitivity to the following equation:

$$b_{11} + b_{12} + b_{1j} + \dots + \dots + b_{1n} = \Sigma$$

$$b_{i1} b_{i2} + \dots + b_{ij} + \dots + b_{in} = \Sigma \dots \dots \dots (2)$$

$$BN_1 + BN_2 + BN_N + \dots + \dots + BN_J b_{1n} = \Sigma$$

or in the general equation:

$$s_i = \Sigma_j b_{ij}$$

where

$s_i$  = the amount of impact to sector  $i$  as a result of changes in all economic sectors.

The values in the above equation is also known as the number of degrees of sensitivity, which explains the magnitude of the impact it had on output of a sector as a result of changes in final demand in each sector of the economy. Because of this magnitude to explain the formation of output in a sector that is affected by the final demand of each sector of the economy, then this measure can be used to look forward linkages (forward linkages).

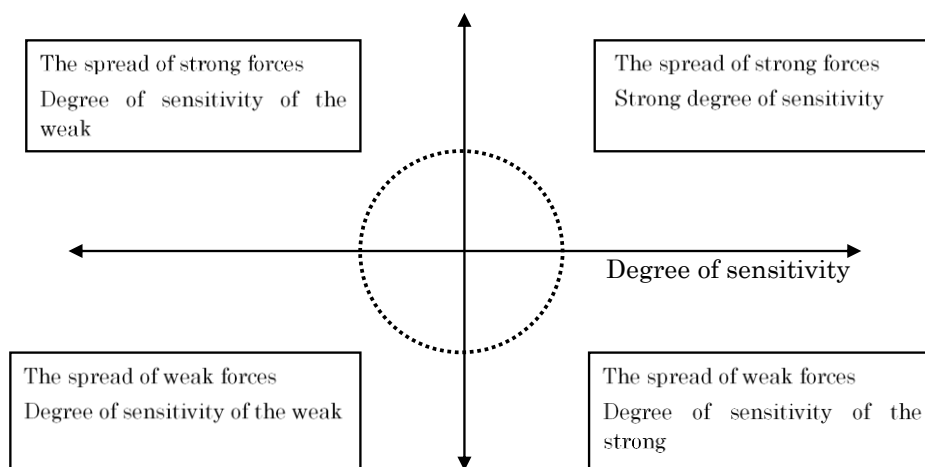
For comparison between the requirements and logic similar to the discussion of its spread, the above equation is normalized to:

$$\beta_i = \frac{\sum_j b_{ij}}{\frac{1}{n} \sum_i \sum_j b_{ij}} \dots \dots \dots (3)$$

Where:

$b_i$  = index of the degree of sensitivity of  $i$  or more commonly referred to as degrees of sensitivity alone.

$b_i$  values  $> 1$  indicate that the degree of sensitivity of the sector 1 is higher than the average degree of sensitivity of the whole sector, while  $b_i < 1$  shows the degree of sensitivity of the  $i$  is lower than average. Degree of sensitivity index was referred to as impact level connectivity to the front (forward linkages effect ratio). Table of coefficients are coefficients that describe the relevance of the direct effects and indirect effects from changes in a sector. Table of coefficients is referred to as the connectivity matrix multiplier (multiplier matrix). In the macro model, the term is often used to explain the multiplier effect that occurs in the endogenous variable due to changes in exogenous variables. Matrix multiplier in the IO table can be used to see Impact analysis. The rationale of its spread (backward linkages) is the change in output in a sector will result in changes in provider sectors, while the degree sensitivity (forward linkages) are the changes that occur in a sector will lead to other sectors of the stimulus as a user output. When the spread of powerful forces means the commodity will provide a very strong backward linkage effects. This sector has shown a lot of activities will be directly influenced by the structure of its inputs, because when one output is required, then other commodities will also be required by the request, whereas the sensitivity degree shows the strength of the strength of a commodity that could be sensitive to all economic sectors, particularly if there is demand from final demand (final demand). The force sensitivity shows the structure of indirect economic demand, though, because the structure of final demand is more balanced, it will impact on the total demand for commodity output, respectively. Its spread and degree of analysis is more sensitive benefit, when expressed in terms of the four quadrants as illustrated in figure 3

**Figure – 3: Analysis of the Spread and Magnitude of the Force Sensitivity****DEGREE OF SPREADS**

Both backward analysis (backward linkages) and forward (forward linkages) in the event will show the strength of a combined effort in driving economic economy. Backward and forward linkage air transport sector 33 (thirty-three) sectors, where the direct effects of backward linkage units 0,479.494, 1,390.743 indirect effects units, the total value of 1,870,237 units of backward linkage effects while direct forward linkage 0.122721 units and indirect 1.044422 units of the total value of 1,167,143 units of forward linkage.

Force of diffusion and the highest degree of sensitivity of the air transport activity appears not as expected (Expectacy) Banten province from 33 sectors of economic activities and products of chemical industry only goods made of chemical elements that provide a direct effect of 0,2177.705 units, and indirect effects of 0,178.026 units

Backward linkage and forward transactions of domestic air transportation sector on the basis of producer prices in Banten in four sectors can be clearly seen that the connectivity back (backward linkages) the direct effects of air transport 0.081011, while the indirect effects of 1.008342 between the primary and largest secondary, indirect effects Like that forward linkage and indirect 1.008342 0.081011 greatest among primary and secondary sectors.

Backward and forward linkage see that the top ten with the highest dispersion forces are the 14 (Industrial goods and metals) of 2,368,248 units, the 8 (Industrial textiles, apparel, leather, footwear) of 2,264,831 units, the 10 ( paper industry and paper goods from the goods) of 2,194,452 units, sector 11 (the chemicals, products of chemical products) of 2,056,362 units, sector 17 (Water Supply) of 1,933,596 units, sector 18 (Buildings) of 1899,455 units, sector 26 (Air Transport) of 1,870,237 units of the 20 (Hotel) of 1,675,572 units, and the 21 (Restaurant) of 1,669,059 units, while the degree of sensitivity of the other: Industrial Chemicals, and goods chemicals, metal products industry, trade, textile industry, paper industry and paper goods from the goods, primary metals industry, Tabama, Electricity, Transport roads, food industry, beverages, tobacco.

Connectivity back (backward linkages) and connectedness forward (forward linkages) of the Air Transport Force Distribution 1,870,237 units, meaning that the air transport sector impact is very strong backward linkage and the degree of sensitivity of the direct effect of 1,167,143 units back connectivity (degree sensitivity) on the air of the largest economic sectors in sector 11 (chemical industry) it is 0.217705, the 19 (trade) contributes as



much as 0.018746, sector 21 (restaurant) of 0.030253 and sector 27 (transport support) covering the activities of loading and unloading goods Services, warehousing, delivery services goods, services, cold storage of 0.052413.

Indirect backward linkage effects (degree sensitivity) on the air covering the activities of the 8 (textile industry), sector 10 (paper industry), sector 11 (chemical products) and the 19 (trade), while the direct effect of forward linkage (its dissemination) covering the largest sector 7 (industrial food and beverage), sector 27 (transport support).

For the relevance of the indirect effects (power spread), which include the largest: the 10 (paper industry), the 8 (textile industry), sector 11 (chemical industry), sector 27 (transport support). Combination of numbers and degree spread its sensitivity shows the strength of a commodity or economic sector to economic development in the region.

The group is described in the analysis of the four quadrants of the picture 3. Which indicated the sector who have the sensitivity of the spread and degree of an economic sector. To classify all economic sectors in the four quadrants derived concluded, that the concentration of economic sectors is in I, II and III and only a few in quadrant IV.

Based on the above analysis in table 4 and connectedness back and forward air transport sector obtained the conclusion that the economic sectors that occupy quadrant I are among the other sectors: Industrial chemicals, metal goods, textiles, footwear, paper, printed matter, road transport, food beverage and tobacco industry / tobacco. This sector contributes to its dissemination and a high degree of sensitivity compared to other sectors.

Implications if the Banten province means to pursue the growth of other sectors so balanced, it should be given greater attention be given priority to economic growth may soon grow more rapidly than today, especially in quadrant II is associated with the presence of air as an agent of urban development.

From an analysis of the fourth hypothesis can be concluded, that the Soekarno-Hatta airport with air transport output can impact directly or indirectly, although the value is not significant compared with the activity of a huge airport that is expected to create growth that is higher than this time.

## **(5) The Five Hypothesis Testing**

Based on the analysis and the condition of the airport Soekarno-Hatta International Environment device that is in the form of waste water treatment, waste incineration aviation industry, protective tree planting around the airport has done well, but the basic concept based on field studies for Environmental setting has not been done in total as of other: (a) minimize Atmosphere, (b) Reduce energy consumption, (c) Noise & Vibration minimize, (d) Prevent pollution and contamination of Waterways, (e) Prevent ground pollution from oil, Chemicals, etc., and (f) Encourage Greater reuse of waste products generated.

## **CONCLUSIONS AND RECOMMENDATIONS**

### **5.1 Conclusion**

Based on the results of hypothesis testing has been done in conjunction with the presence of Soekarno-Hatta International airport to the Environment (environment) and economic growth in Banten province, then the resulting 2 (two) concluded between:

- (a) General Conclusion, and
- (b) Conclusion Special

### **(a) General Conclusion**

Causal relationship has developed between the effect of the development of the airport Soekarno-Hatta International Banten province on the growth of the economy. By using Model Analysis of Structural Equation Modeling, whereas to know how far backward linkages (backward linkages) and the deployment of the air transport sector to other sectors, as well as forward linkages (forward linkages) to determine the degree of sensitivity of the Air Transport sector with other sectors in the province of Banten by using the Input Output Analysis Method.

To assess the impact of the existence of the airport to the improvement of the environment (environment) can be seen from the construction of waste treatment facilities and sewage and industrial wastewater cleaning has greening aviation and airport environment in an effort to reduce the impact of aircraft noise pollution and its operational activities in an effort to make the airport to be the Eco Airport

### **(b) Special Conclusions**

- (a) There is a growing influence international airport Soekarno-Hatta on the growth of the economy, Banten Province, at -10.51 and 9.56 for the indirect effects as a result of the growing influence of economic sectors, while the total effect of the growth of economic sectors amounting to 0.95.
- (b) By using a statistical test results of Structural Equation Modeling Analysis Model (SEM), there is a growing influence Soekarno Hatta International Airport on economic sectors such as: Manufacturing of 0.27, 0.72 for Transport, Government Services and Private of 0.90, Wholesale and Retail at 0.82, Hotels and Restaurants of 0.50 by 0.73
- (c) Growth in economic sectors such as: Manufacturing, Transportation, Service Services, Wholesale and Retail, Hotel and Restaurant under the influence of Soekarno Hatta airport development impacts economic growth in Banten Province average of 4.58 percent
- (d) By using a statistical test model of Input Output (IO), showed no backward linkages (backward linkages) and the spread of economic sectors, Banten Province, which indicated either directly or indirectly to the air transport sector of processing industry of 0.489652 units or 48.9652 percent, trade, hotel and restaurant sector 19 to 21 units of 0.101075 or 10.1075 percent. This shows that when the spread is very powerful means of the commodity will provide a very strong backward linkage effects. This sector showed a lot of activities will be directly affected by the structure of its inputs, because when one output is required, then the commodities are poised required by the request.
- (e) There are forward linkages (forward linkages) and the influence of the degree of sensitivity is directly or indirectly to the air transport sector manufacturing units of 0.0031118 or 0.31118 percent and the financial sector, renting and business services sector at 0.008266528 units 29 or 0 , 8266528 percent, the degree of sensitivity suggests that the indirect demand structure of the economy, because if

the structure of final demand are more balanced, it will affect the total demand for each commodity output

- (f) Insufficient accessibility and adequate supporting facilities include: Road, Hotel, Restaurant, Place of Entertainment and Travel, gift shop and land transportation), so many visitors Global Country (tourism) and the travelers (excursionist) who visited through Soekarno Hatta Airport do not visit Jakarta and Banten Province that resulted in travel expenses during the Capital does not flow into the Province of Banten, this resulted in substantial revenue leakage

## 5.2 Suggestions

Based on the above results, the suggestions put forward some suggestions as follows:

- 1) The existence of Soekarno Hatta International Airport should be able to contribute to the province of Banten either direct or indirect effects to enhance the province's economic growth. Banten in an effort to increase GDP and increasing per capita income of the population.
- 2) In an effort to encourage the acceleration of economic growth in Banten province where the airport should not only be able to contribute the growth of Industry, Transport, Real Estate Services, wholesale and retail trade, Hospitality and Restaurant, but other economic sectors Expected to grow.
- 3) Economic growth in the sector among other sectors: Manufacturing, Transportation, Services, Wholesale and Retail, Hotel and Restaurant should be able to provide a greater contribution to economic activity in Banten province so as to further enhance employment opportunities and income per capita.
- 4) Effect of backward linkages (backward linkages) that could influence the spread and forward linkages (forward linkages) that potentially influence the sensitivity should be generating activities supporting industrial sectors because of the commodity is needed, so that its output structures can develop due to the many requests.
- 5) Should consider developing the necessary facilities accessibility and tourists and other airport service users such as hotels, recreation, entertainment sera road accessibility to and from Banten province.
- 6) The existence of an airport should not cause serious environmental impacts that result in disruption of the survival of humans, animals and vegetation

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